Tank GT20

B5375

Service Engineer's Manual

PREFACE

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Version 1.0

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Operation is subject to the following conditions:

1) This device may not cause harmful interference, and

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
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CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your Tank GT20. This manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts

Chapter 1: Provides an Introduction to the Tank GT20 B5375 bare-bones, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.

Chapter 2: Covers procedures on installing the CPU, memory modules, PCI-E card, and hard drives.

Chapter 3: Covers removal and replacement procedures for pre-installed components

Appendix: Provides information on installing SO-DIMM cards and describes the differences between mainboard BIOS and system BIOS. The cable connection tables are also provided for reference of system setup.

For information on the mainboard, please refer to the attached mainboard user's manual. You can find the detailed description about jumper and BIOS settings from the motherboard manual.

SAFETY INFORMATION

Before installing and using the Tank GT20, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the Power Company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

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Chapter 1: Overview

1.1 About the Tank GT20 B5375

Congratulations on your purchase of the TYAN Tank™ GT20 (B5375), a highly-optimized rack-mountable barebone system. The Tank GT20 (B5375) is designed to support two Intel® Xeon 5100/5200/5400 processors, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, the Tank GT20 (B5375) server system is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and a lightning-fast PCI-E bus implementation. The Tank™ GT20 (B5375) not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

TYAN is also proud to deliver the Tank™ GT20 (B5375) in SATA flavor while supporting up to four (4) hot-swap hard drives and one (1) slim DVD-ROM. The Tank™ GT20 (B5375) uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of this provides the Tank™ GT20 (B5375) the power and flexibility to meet the needs of nearly any server application.

1.2 Features

Enclosure
- Industry 19” rack-mountable 1U chassis storage bay
  - (4) 3.5” HDD bays
  - (1) DVD-ROM Bay
- Dimension: D 22.4 x W 17.2 x H 1.72 inch (568x436x43.6mm)

Processor
- Supports up to two Intel® Xeon 5100/5200/5400 processors
- Dual LGA 771 sockets
- 1066/1333MHz FSB

Chipsets
- Intel 5100 (San Clemente) MCH
- Intel ICH9-R South Bridge
- Winbond 83627DHG Super I/O Chip

Memory
- Supports eight (8) 240-pin DDR2 DIMM sockets
- Maximum of 32GB DDR2-533/667 memory
- Supports Registered ECC DIMMs

Video
- XGI® Z9S PCI graphics controller
- 32MB DDR2 frame buffer of video memory

Storage
- Hard Disk Drives:
  - Support (4), SATA/SATA2 HDD with RAID 1, 0, 5, 0+1
  - Pre-installed SATA DVD-ROM

Expansion Slot
- One (1) PCI-E x16 riser (M2083 pre-installed)

Motherboard
- TYAN S5375G2NR
- CEB footprint (12 x 10.5”)

Back I/O Ports
- Stacked PS/2 mouse & keyboard ports
- Stacked two USB 2.0
- One (1) 15-pin VGA port
- One (1) 9-pin COM port
- Two (2) RJ-45 10/100/1000 ports
- One (1) RJ-45 port for M3295-2 / M3296 (optional)

Front Panel Features
- I/O
  - (2) USB 2.0 ports
- LED indicators
  - Power LED
  - (2) LAN LEDs
  - HDD active LEDs
  - Warning LED
  - ID LED
- Switches
  - Power
  - Reset
  - NMI
  - ID

Networking
- Two (2) LAN ports
  - Two (2) 82573V (via PCI-E x1 signal)

Server Management
- System fan speed monitoring and control
- Supports TYAN Server Management (TSM)
- Optional TYAN SMDC M3295-2 / M3296, IPMI 2.0 compliant
- Support TYAN LCM Module

BIOS
- AMI BIOS on 8Mbit Flash ROM
- Supports ACPI 2.0
- Supports boot from USB device
- WOL and PXE support
- Power-on mode control for AC power loss recovery
- PnP, DMI2.0, WfM2.0 Power Management (S1, S4, S5 support)
- Serial Console Redirect

System Cooling
- Four (4) 40*40*56mm 15000rpm & one (1) 40*40*28mm 15000rpm heavy-duty fans with fan speed monitor/control
- Two (2) Passive CPU heatsinks

Regulatory

- FCC Class A (Declaration of Conformity)
- CE (Declaration of Congormity)
- VCCI
- C-Tick

Environment Temperature

- Operating temperature 5^{o}C~35^{o}C
- Non-operating temperature -40^{o}C ~ 70^{o}C

Power Supply

- EPS 12V, 1U, 600W with PFC
- 100V~240V AC input

1.3 Unpacking

This section describes the Tank GT20 package contents and accessories.

1.3.1 Opening the box

Open the box carefully and ensure that all components are present and undamaged. The product should arrive packaged as illustrated below.

Packaged accessories

1.3.2 Box Contents

Industry standard 1U chassis, (4) hot-swap HDD bays

Tyan S5375 motherboard (pre-installed)

EPS 1U 600W PSU (pre-installed)

(1) 40mm x 28mm FAN

(4) 40mm x 56mm FAN

LED and USB control board (pre-installed)

Fan Adapter Board

SATA Backplane

1.3.3 Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN's Web site for service: http://www.tyan.com.

The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.

HDD Screws

(2) Heatsink

1 x Tyan Barebone driver CD

Power Cables
Left to right: Europe, US

Barebone Manual

Rail Kit

Mounting Bracket x 4

Sliding Brackets
Front L-Bracket x 2
Rear L-Bracket x 2

Mounting Ears & Screws

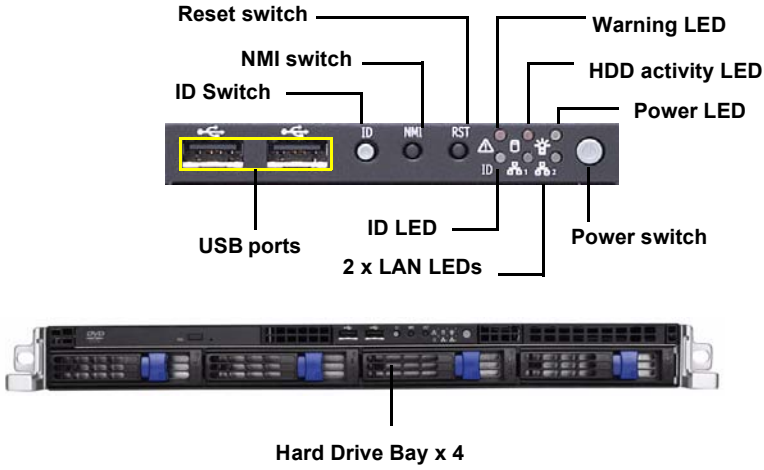
Screws Kit

Sliding Rails x 2

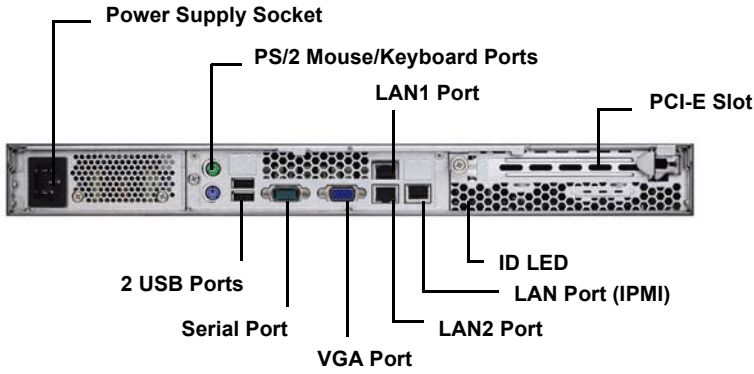
1.4 About the Product

The following views show you the product.

1.4.1 Front View



1.4.2 Rear View



1.4.3 LED Definition

Front Panel

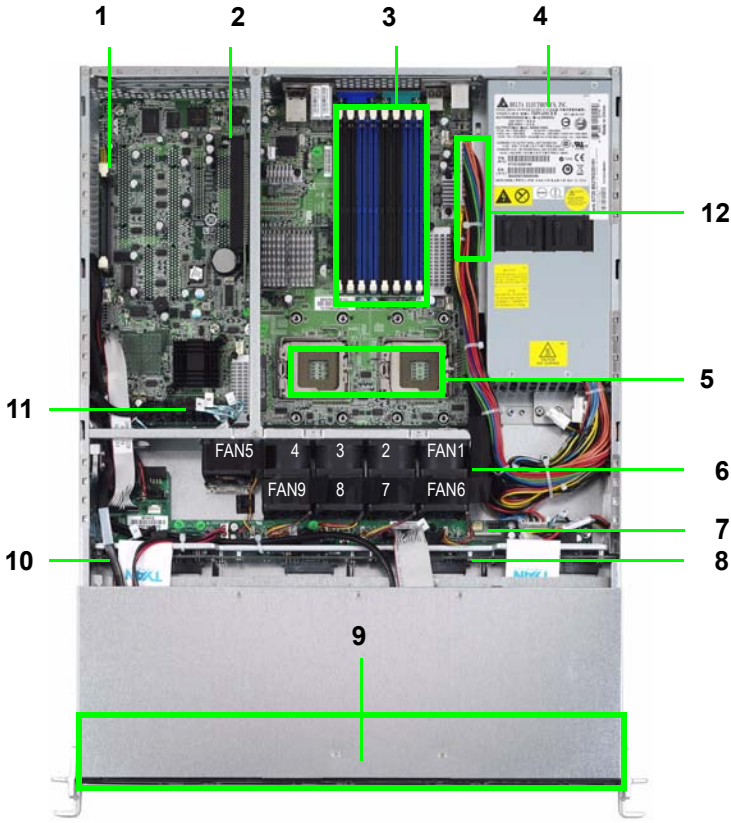
LED	Color	State	Description
Power	Green OFF	ON OFF	Power ON Power OFF
HDD Activity	Amber OFF	Random Blinking OFF	HDD access activity No disk activity
LAN1/LAN2 Linkage	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
Warning	Red OFF	ON OFF	Fan fails Normal
Hot Swappable HDD Tray Power LED	Green OFF	ON OFF	Power connected Power disconnected
Hot Swappable SATA HDD Access LED	Amber OFF	Random Blinking OFF	HDD Access Activity No disk activity
Hot Swappable SAS HDD Access LED	Amber Amber OFF	ON Random Blinking OFF	HDD ready HDD access activity HDD not ready
ID LED	Blue OFF	ON OFF	System is identified System is not identified

Rear I/O LED

*Right or Left is viewed from the rear.

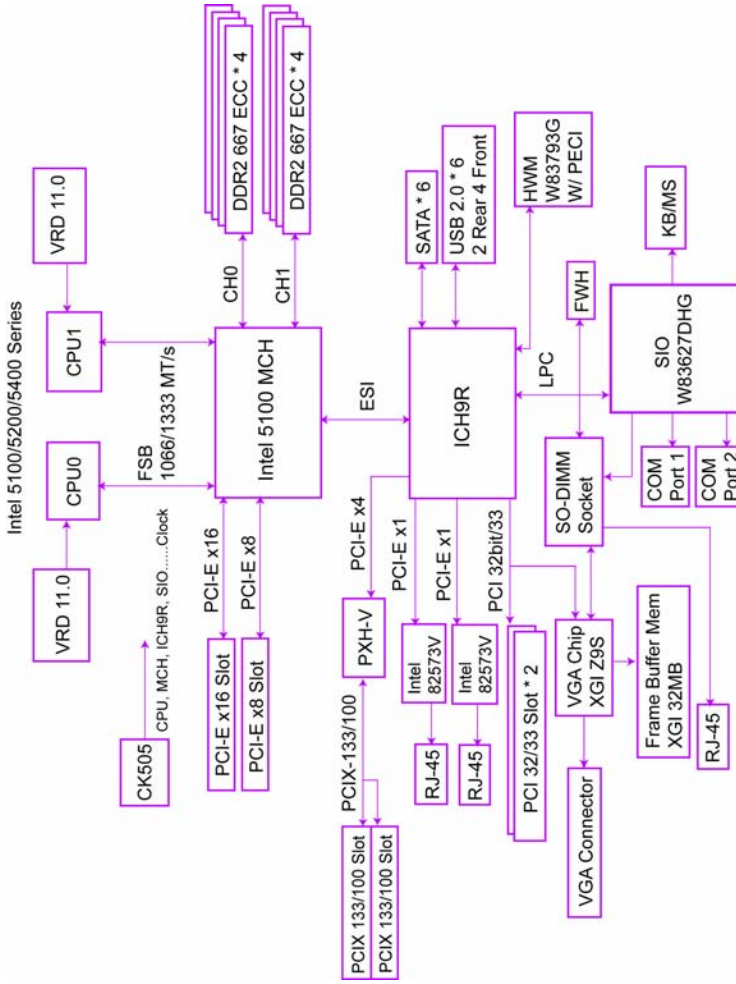
LED	Color	State	Description
RJ45 NIC1 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
RJ45 NIC1 Mode (Right Side)	Amber Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
RJ45 NIC2 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
RJ45 NIC2 Mode (Right Side)	Amber Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
ID LED	Blue OFF	ON OFF	System is identified System is not identified

1.4.4 Internal View

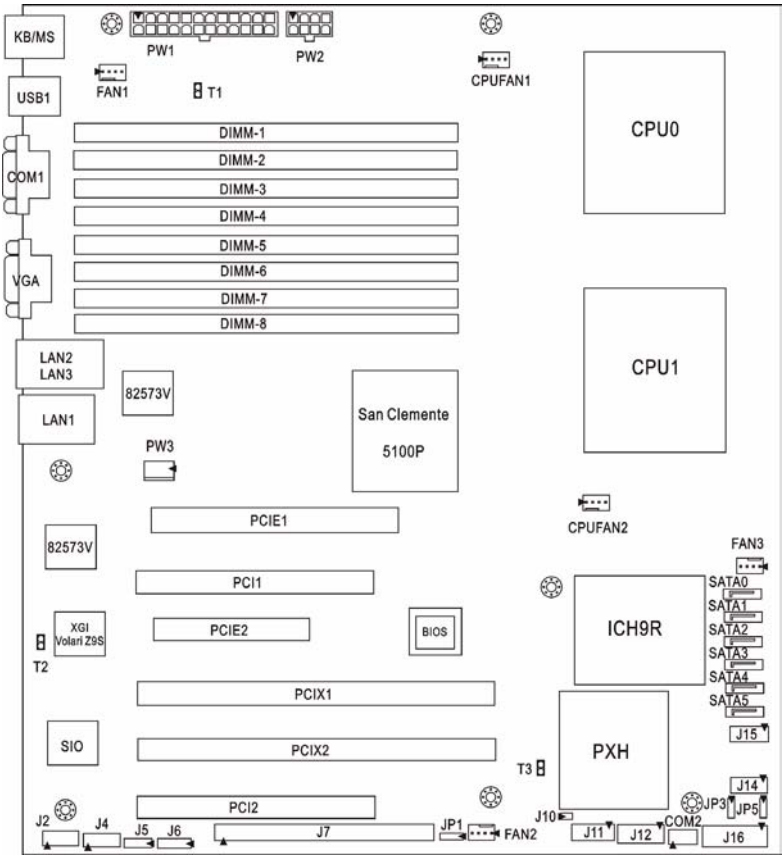


1. SMDC (M3295-2/M3296) Slot
2. PCI-E Riser (M2083) Slot
3. Memory Slots
4. Power Supply
5. CPU Sockets
6. System Fans
   Top (right to left):
   FAN1/2/3/4/5
   Bottom (right to left):
   FAN6/7/8/9
7. M1012 Adapter Board
8. SATA Backplane
9. Four SATA HDD Bays
10. SATA/SAS Cable
11. One SATA/SAS Cable for four SATA HDDs
12. Power Connector

1.4.5 Motherboard Block Diagram



1.4.6 Motherboard (S5375) Layout



Jumpers & Connectors

Jumper/Connector	Function
J2	CD_IN Connector
J4	Front Panel Audio Connector
J5	AUX_IN Connector
J6	IPMB Connector
J7	SO-DIMM Socket
J10	Chassis Intrusion Connector
J11	Fan Board Header for Barebone
J12	TYFP2 Connector for Barebone
J14/J15	USB Front Panel Connector
J16	Front Panel Connector
USB1	USB Rear Connector
COM2	COM2 Header
SATA0~SATA5	Serial ATA Connector
PW1	24-pin Power Connector (EPS 12V)
PW2	8-pin Power Connector (EPS 12V)
PW3	Aux. Power Header for TYAN Riser Card (M2061)
CPUFAN1/CPUFAN2/ FAN1/FAN2/FAN3	4-pin Power Connector with Tachometer
JP1	VGA Enable/Disable Jumper
JP3	Clear CMOS Jumper
JP5	PCI-X Speed Select Jumper
T1	Thermal Point for Memory
T2	Thermal Point for VGA
T3	Thermal Point for PXH

NOTE

Chapter 2: Setting Up

2.0.1 Before You Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI card are also given.

Take note of the precautions mentioned in this section when installing your system.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Tank GT20 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

2.1 Rack Mounting

After installing the necessary components, the Tank GT20 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2

Sliding Brackets x 4 (Front x 2, Rear x 2)

Mounting Ears (including screws) x 2

Screws Kit x 1

Mounting Brackets x 4

2.1.1 Installing the Server in a Rack

Follow these instructions to mount the Tank GT20 into an industry standard 19" rack.

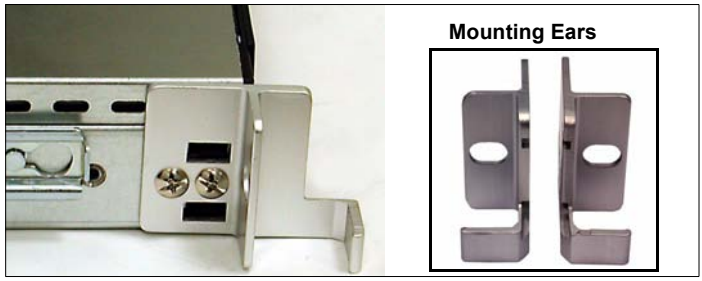
NOTE: Before mounting the Tank GT20 in a rack, ensure that all internal components have been installed and that the unit has been fully tested.

Screws List

No.	Screw	Size	Quantity
A		M4-4L	18
B		M5-8L	10
C		M5-15L	4

Installing the Inner Rails to Chassis

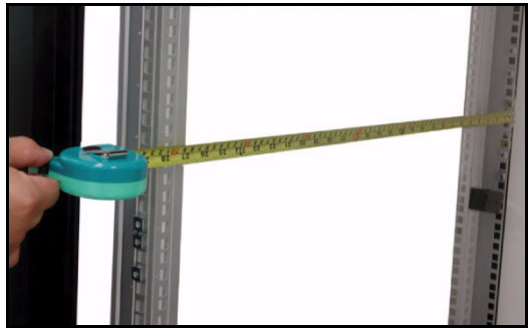
1. Screw the mounting ear to each side of Tank GT20 as shown using 2 screws from the supplied screws kit.



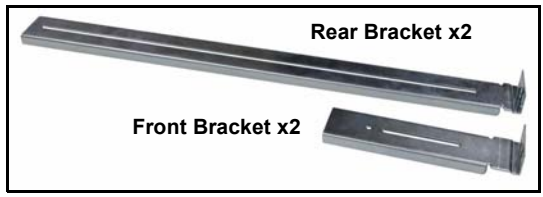
2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 1 M4-4L(A) screw for each side.

Installing Outer Rails to the Rack

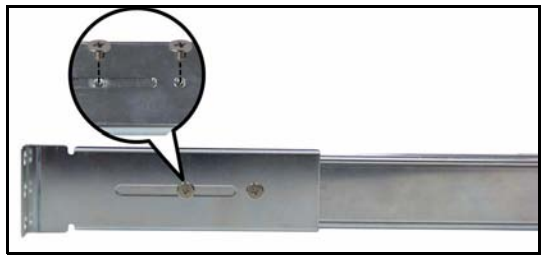
3. Measure the distance between inner side of the front and rear mounting brackets in the rack.



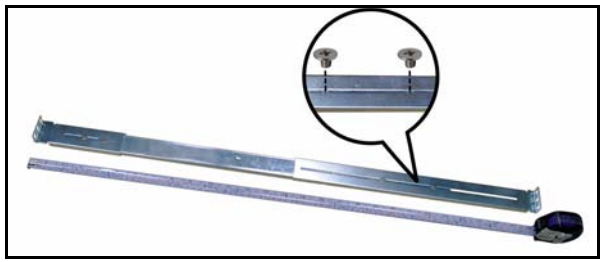
4. Locate the front and rear brackets.



5. Secure the front bracket to outer rail with 2 M4-4L(A) screws.



6. Reserve the distance same as in Step 2 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L(A) screws.

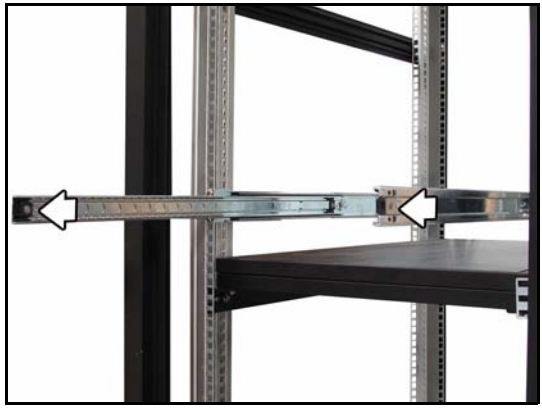


7. Secure the outer rail to the rack using 2 brackets and 4 M5-8L(B) screws for each side. Secure the mounting brackets from inside, not outside, of the rack.

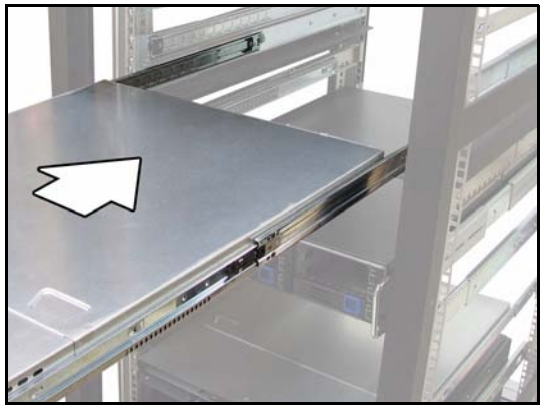
Mounting Bracket

Rackmounting the Server

8. Draw out the middle rail to the latch position.



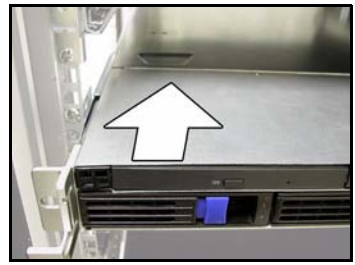
9. Lift the chassis and then insert the inner slide rails into the middle rails.



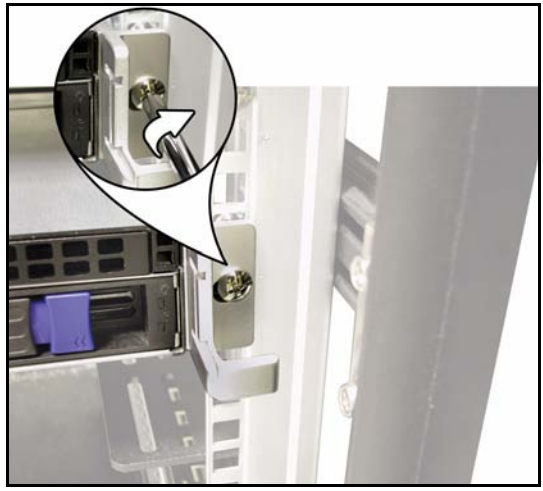
10. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).

A

B



11. Secure the mounting ears of chassis to the rack with 2 M5-15L(C) screws.



NOTE: To avoid injury, it is strongly recommended that two people lift the Tank GT20 into the place while a third person screws it to the rack.

2.2 Installing Motherboard Components

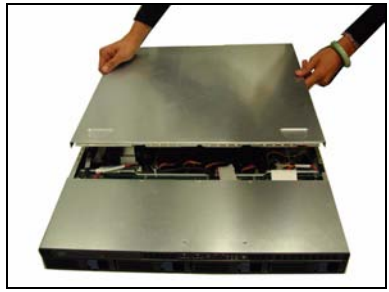
This section describes how to install components on to the motherboard, including CPU, memory modules and PCI card.

2.2.1 Removing the Chassis Cover

Follow these instructions to remove the Tank GT20 chassis cover.

1. Remove the screw on the back side. Then slide the chassis cover in the direction of arrow.

2. Lift the cover off.

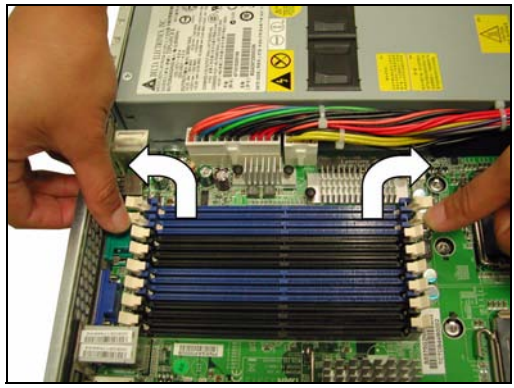


2.2.2 Installing the Memory

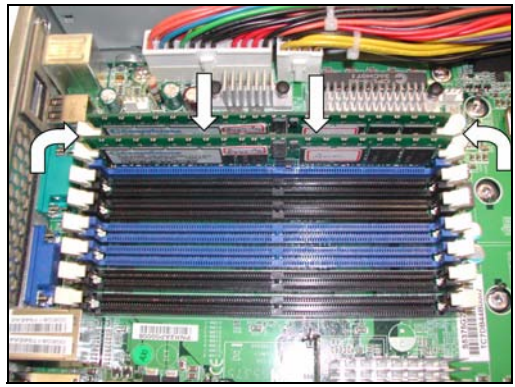
Follow these instructions to install the memory modules on the motherboard.

1. Locate the memory slots on the motherboard.

2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Install memory in the slots starting with DIMM-1 and DIMM-2. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module. For optimal system operation, please install memory **in pairs**.



DIMM-1
DIMM-2
DIMM-3
DIMM-4
DIMM-5
DIMM-6
DIMM-7
DIMM-8

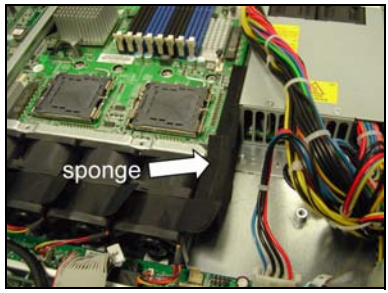
Memory Population Rules

		Single Channel								Dual Channel			
		Channel 0				Channel 1				Channel 0 & 1			
Single Rank Memory	DIMM1	x	x	x	x					x	x	x	x
	DIMM2					x	x	x	x	x	x	x	x
	DIMM3				x								x
	DIMM4								x				x
	DIMM5		x	x	x						x	x	x
	DIMM6						x	x	x		x	x	x
	DIMM7			x	x							x	x
	DIMM8							x	x			x	x
Dual Rank Memory	DIMM1	x		x						x		x	
	DIMM2					x		x		x		x	
	DIMM3												
	DIMM4												
	DIMM5			x								x	
	DIMM6							x				x	
	DIMM7												
	DIMM8												

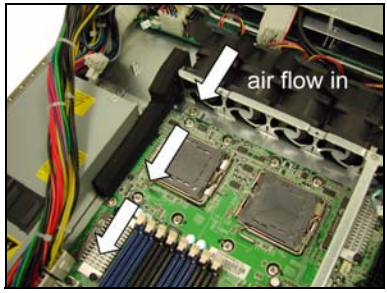
NOTE:
Only DIMM-1, DIMM-2, DIMM-5 and DIMM-6 slots support Dual Rank memory modules.

2.2.3 Installing the CPU and Heatsink

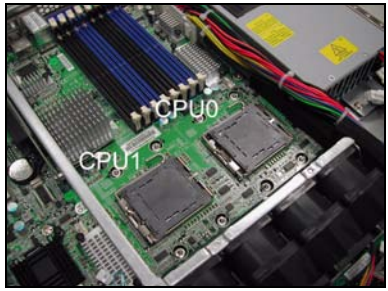
1. Follow these instructions to install the CPU and CPU heatsink.
2. Before you install the CPU and heatsink, please make sure a black sponge is attached to the fans for better thermal solution.



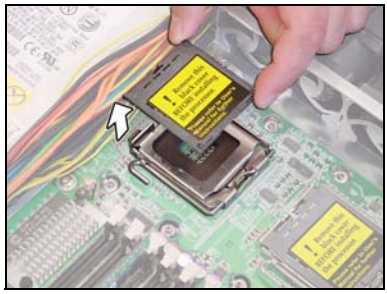
3. The sponge enhances air flow in to dissipate heat.



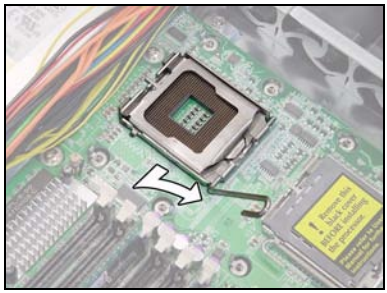
4. Locate the CPU sockets. Remember to start with CPU0 first.

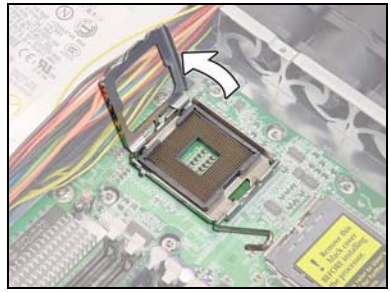


5. Remove the load plate to install CPU.

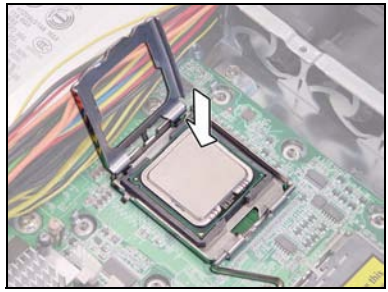


6. Pull the CPU lever up to release the CPU socket to a fully open position.



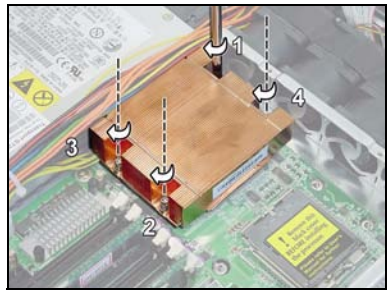


7. Place the CPU on the CPU socket, ensuring that pin 1 is located in the right direction.



8. Press the CPU socket lever down in the direction shown to secure the CPU.

9. Screw the heatsink to the motherboard following the indicated order.

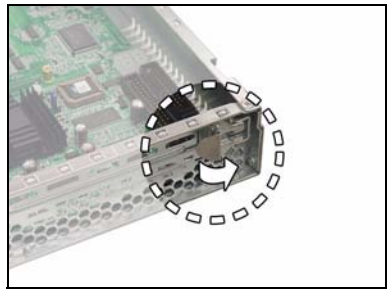


10. Repeat the same procedures to install CPU and heatsink for the second CPU socket.

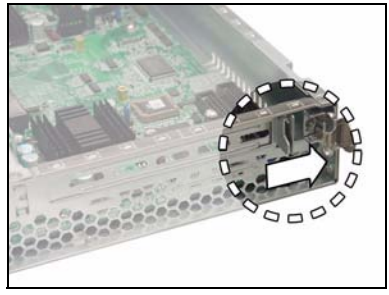
2.2.4 Installing the PCI-E Card

Follow these instructions to install a PCI-E card.

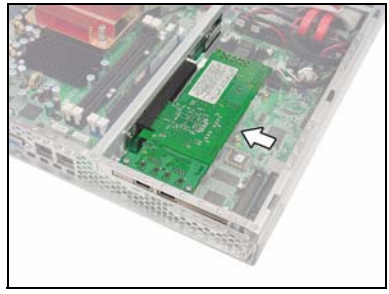
1. Pull open the tab of PCI-E slot on the rear panel in the direction as shown to release the PCI bracket.



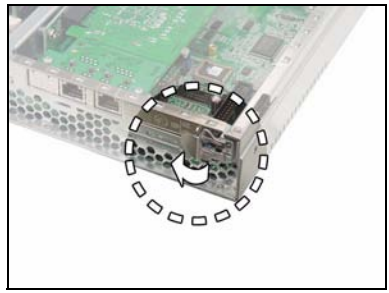
2. Move the tab to right as shown and then take off the PCI bracket.



3. Insert the PCI-E card in the directions of arrow as shown.



4. Push the tab of PCI-E slot on the rear panel in the direction as shown to secure PCI-E card.



2.3 Installing the External Hard Drive

The GT20 chassis kit supports external SATA or SCSI hard drives.

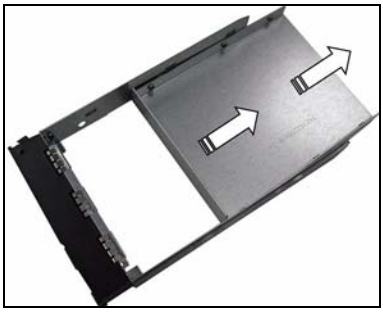
Follow these instructions to install an external SATA or SCSI hard drive.

1. Press the locking lever latch in the direction of arrow (**A**) and then pull the locking lever open (**B**).

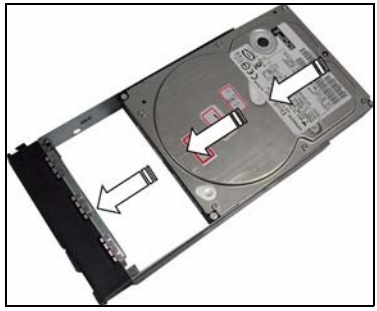
2. Slide the drive tray out.

3. Unscrew the drive tray.

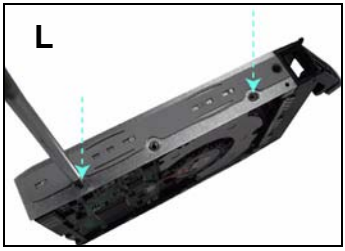
4. Remove the drive tray holder.



5. Place a hard drive into the drive tray.



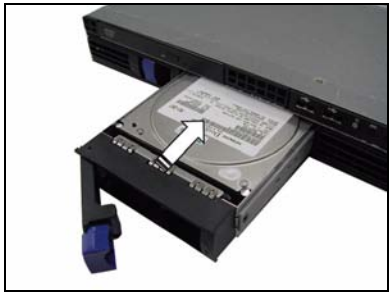
6. Use 4 screws to secure the Hard Disk Drive.



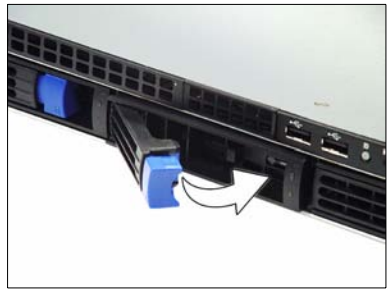
NOTE: The new HDD tray is compatible only with B5375 and models developed later. The new sliding rails on both sides of the drive tray are gray while the old ones are black.

7. Reinsert the drive tray into the chassis (A), ensuring that the drive tray is completely inserted into the chassis (B).

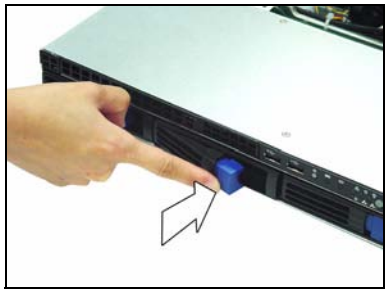
A



B



8. Pressing the locking lever to secure the hard drive tray.



Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre installed components including the motherboard, LED control board, HDD, and CD-ROM drive.

Take note of the precautions in this section when installing your system.

3.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers keeps them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

3.1.2 Tools

The procedures that follow require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Tank GT20 or injury to yourself.

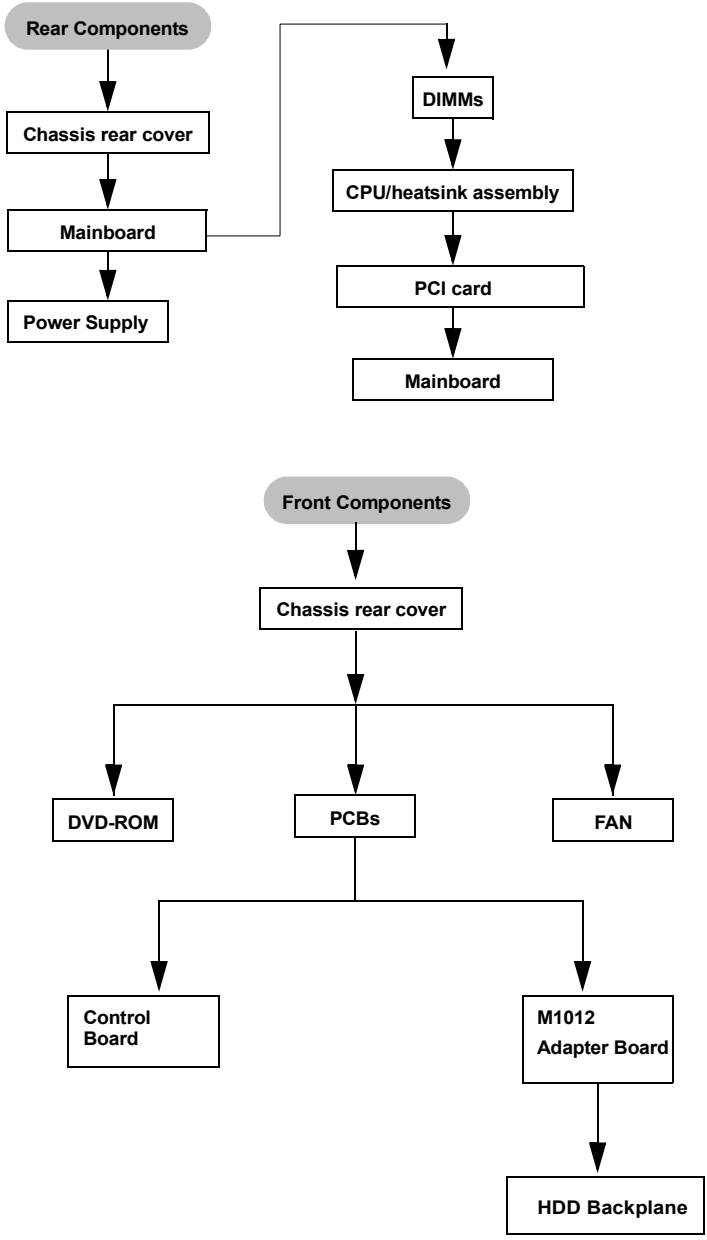
- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.



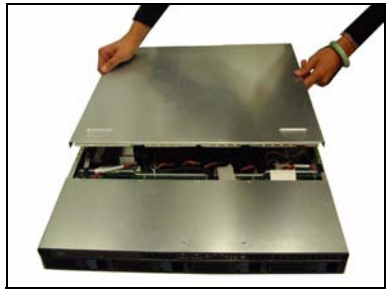
3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Tank GT20 chassis cover.

1. Remove the screw on the back side. Then slide the chassis cover in the direction of arrow.

2. Lift the cover off.



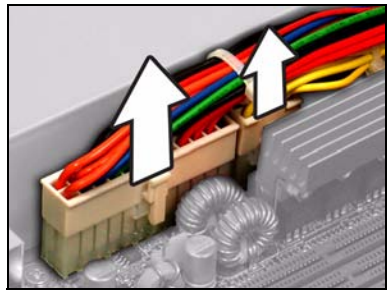
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

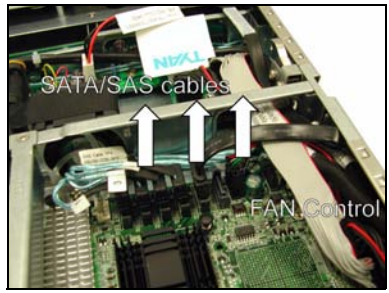
3.4.1 Disconnecting All Motherboard Cables

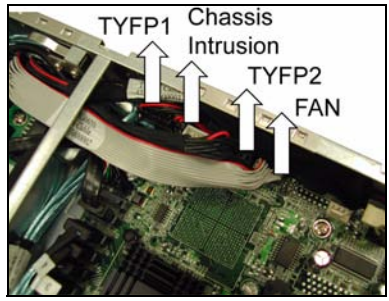
Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cabling.

1. Disconnect ATX power cables.



2. Disconnect all cables from front panel, USB, fans and SATA connectors.

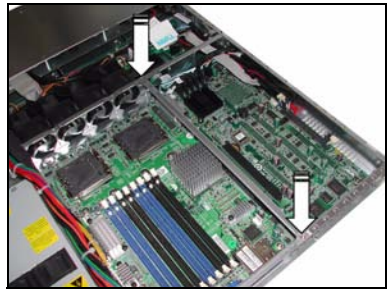




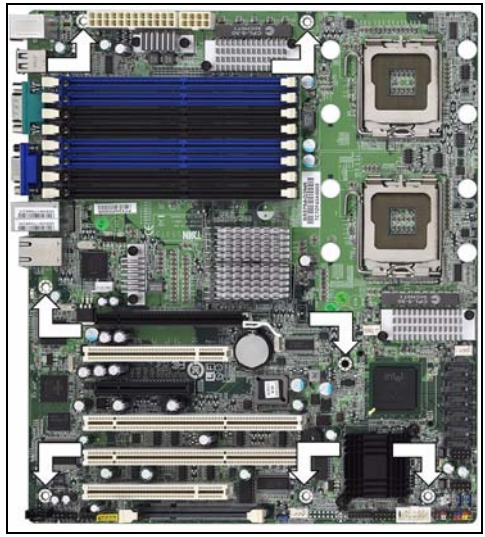
3.4.2 Removing the Motherboard

After removing all of those cables, follow these instructions to remove the motherboard from the chassis.

1. Unscrew to remove the link bar.



2. Remove seven screws securing the motherboard to the chassis.

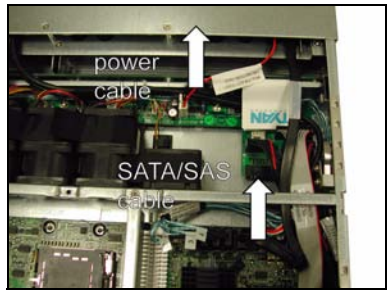


3. Remove the motherboard.

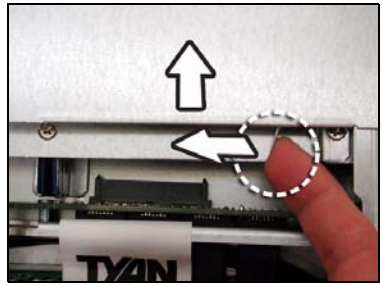
3.5 Replacing the Slim DVD-ROM

Follow these instructions to replace the DVD-ROM.

1. Remove power and data cables from the slim DVD-ROM adapter.

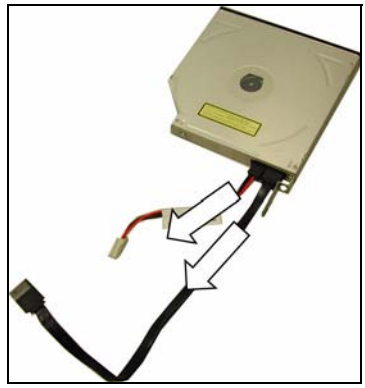


2. Press the tab in the directions as show to release the DVD-ROM drive.



3. The DVD-ROM drive will be freed from the drive bay after pressing the tab.

4. Disconnect the power and data cables from the DVD-ROM drive.



5. Remove two screws that secure DVD-ROM drive to the bracket.

6. Replace the DVD-ROM drive.
7. Secure DVD-ROM to the bracket using two screws. Then replace the unit into the drive bay and connect the DVD-ROM power and data cables.

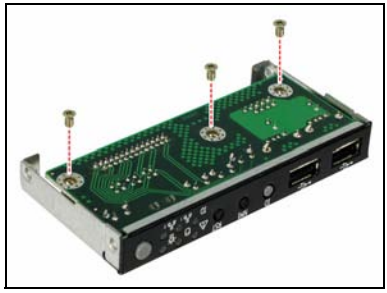
3.6 Replacing the LED Control Board

Follow these instructions to replace the LED control board.

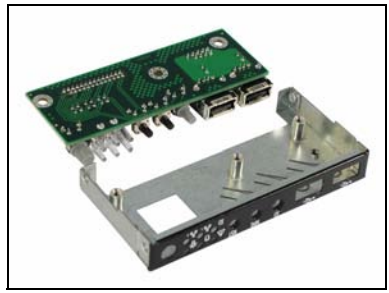
1. Remove two screws securing LED control board unit to the chassis.

2. Lift the LED control board unit free of the chassis.

3. Remove three screws securing LED control board to the bracket.

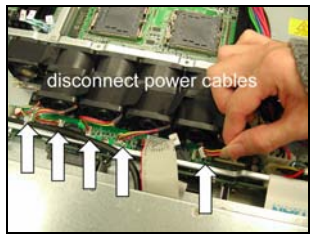


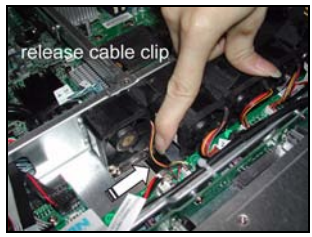
4. Lift the LED control board free from the chassis. After replacement, insert the unit into the chassis.

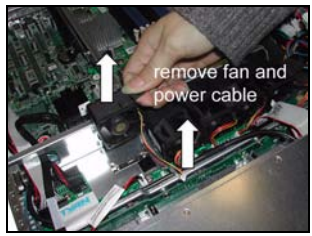


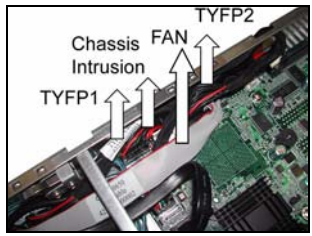
3.7 Replacing the M1012 Adapter Board

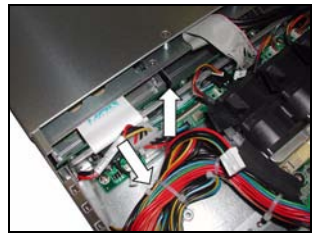
1. Remove all of those cables connected to the adapter board, including fan cables, DVD-ROM power cable, front LED panel cable, power cables, and SATA cables.



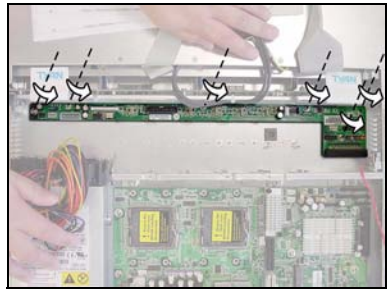




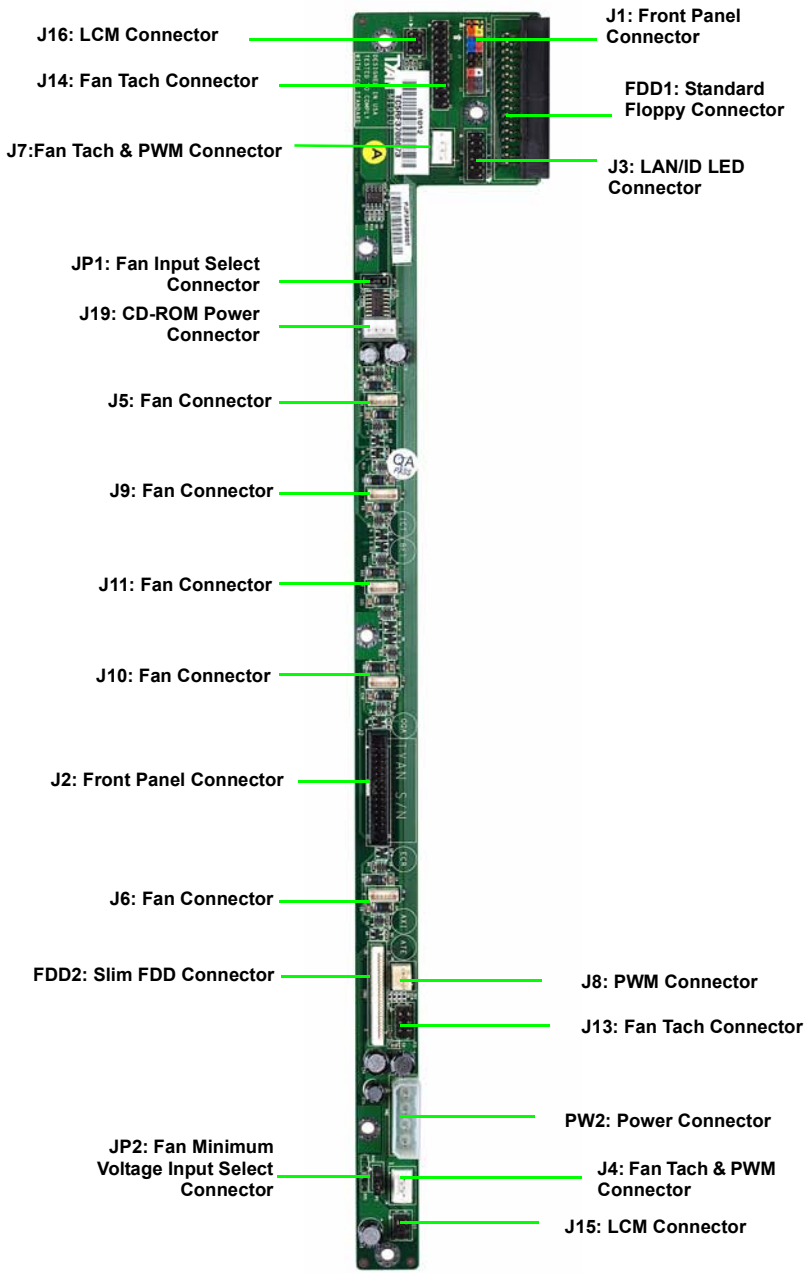




2. Remove six screws to release the adapter board.



3.7.1 M1012 Adapter Board Features for B5375



3.7.2 System Fan Connection

The following tables provide the information for system fan connection.

System Fan Speed Control Signal

M1012 Adapter Board	Connect to	Motherboard
J14 (PWM Signal)	→	J11 (PWM Signal)

System Fan Monitoring Signal

Barebone System Fan	Connect to	Motherboard Fan
J14 (Fan 1~9)	→	J11

3.7.3 M1012 Adapter Board Connector Pin Definition

J1 TYFP Front Panel Connector

1	HDLED+	2	PW_LED+
3	HDLED -	4	PW_LED -
5	RESET-	6	PWR_SW+
7	RESET+	8	PWR_SW -
9	VOLTAGE5	10	WLED+
11	EXT_INT	12	WLED-
13	V5SB	14	KEY PIN
15	ICH_SMBDAT	16	GND
17	ICH_SMBCLK	18	INTRU#

J2 Front Panel Connector

1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMSCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

J3 LAN/ID LED Connector

1	LAN1_LED+	2	LAN1_LED-
3	LAN2_LED+	4	LAN2_LED-
5	LAN3_LED+	6	LAN3_LED-
7	ID_LED+	8	ID_LED-
9	ID_SW+	10	ID_SW-
11	KEY PIN	12	NC

FAN Signal Related Connector Pin Definition

NOTE: The FAN signal naming is based on HW circuit design only. It might be different from the system fan naming.

J4 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN1_TACH
4	PWM1 (Default)

J7 Fan TACH & PWM Connector

1	GND
2	NC
3	FAN7_TACH
4	PWM1 (Default)

J8 PWM Connector

1	GND
2	PWM2
3	FAN1_TACH

J13 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	KEY PIN	8	NC

J14 Fan TACH Connector

1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	GND	8	FAN4_TACH
9	GND	10	FAN5_TACH
11	GND	12	FAN6_TACH
13	GND	14	FAN7_TACH
15	GND	16	FAN8_TACH
17	GND	18	FAN9_TACH
19	GND	20	FAN10_TACH
21	KEY PIN	22	PWM

J6 Fan Connector

1	FAN1_12VPWM
2	FAN1_TACH
3	GND
4	GND
5	FAN2_TACH
6	FAN2_12VPWM

J10 Fan Connector

1	FAN3_12VPWM
2	FAN3_TACH
3	GND
4	GND
5	FAN4_TACH
6	FAN4_12VPWM

J11 Fan Connector

1	FAN5_12VPWM
2	FAN5_TACH
3	GND
4	GND
5	FAN6_TACH
6	FAN6_12VPWM

J9 Fan Connector

1	FAN7_12VPWM
2	FAN7_TACH
3	GND
4	GND
5	FAN8_TACH
6	FAN8_12VPWM

J5 Fan Connector

1	FAN9_12VPWM
2	FAN9_TACH
3	GND
4	GND
5	FAN10_TACH
6	FAN10_12VPWM

J15 & J16 LCM Connectors

1	LCM_+5V	2	LCM_SIN
3	KEY PIN	4	GND
5	LCM_+5VSB	6	LCM_SOUT

JP1 Fan Input Select Connector

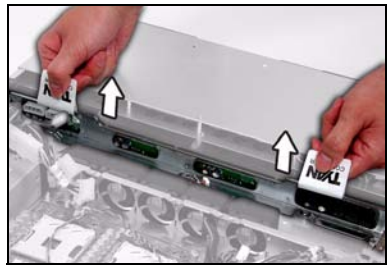
Pin1 & Pin2 Close	Fan PWM signal from J8
Pin2 & Pin3 Close	Fan PWM signal from J4, J7 & J14 (Default)

JP2 Fan Input Select Connector

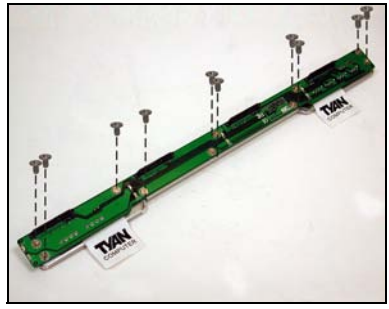
Pin1 & Pin2 Close	0V
Pin2 & Pin3 Close	+5V (Default)

3.8 Replacing the SATA Backplane

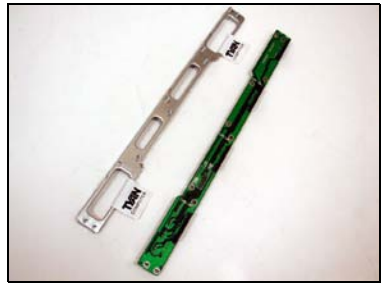
1. After removing the M1028-3-SN adapter board, disconnect those cables connected to the SATA backplane, including SATA and power cables.
2. Grab the two tabs to lift the SATA backplane off.



3. Remove ten screws that secure the bracket to the adapter board.

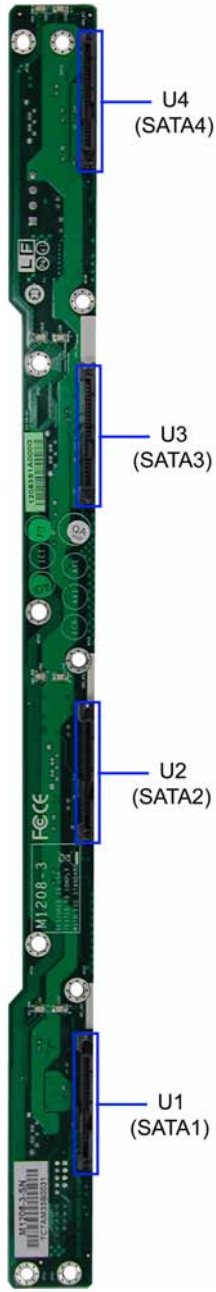


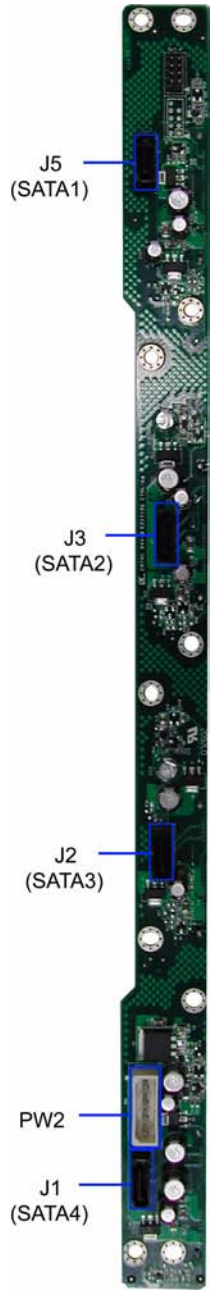
4. Release the adapter board free from the bracket.



5. After replacement, place and secure the unit into the chassis following the reverse procedures from Step 1 to Step 4.

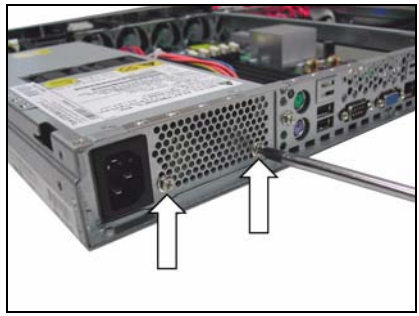
3.8.1 SATA Backplane Features

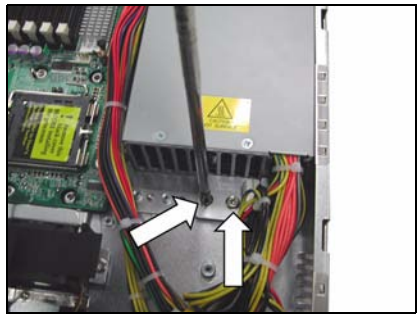



J5
(SATA1)
J3
(SATA2)
J2
(SATA3)
PW2
J1
(SATA4)

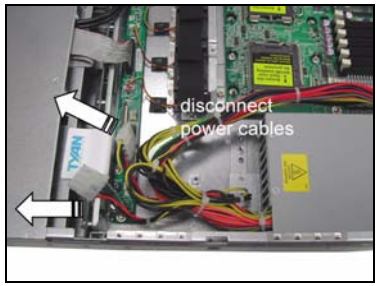
3.9 Replacing the Power Supply

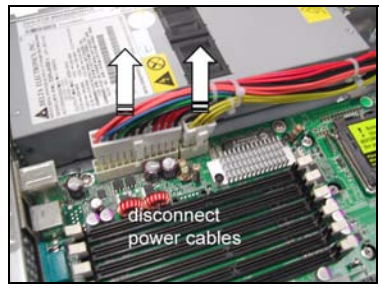
1. Remove four screws securing the power supply to the chassis.

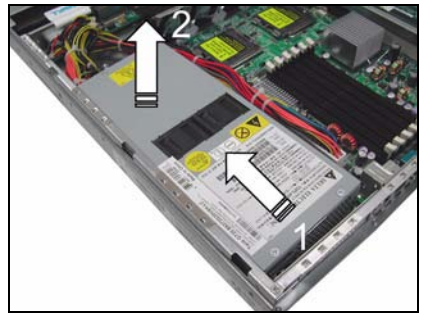




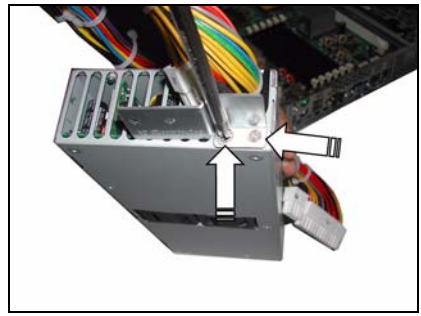
2. Disconnect power supply cables before lifting the power supply free from the chassis.





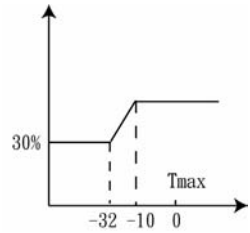
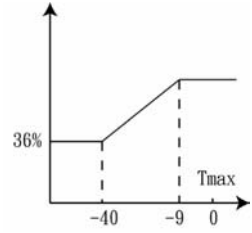


3. First unscrew the bracket to replace the power supply. After replacement, place and secure the unit into the chassis following the reverse procedures from Step 1 to Step 3.



Appendix I: BIOS Differences

The following table displays the differences in BIOS between B5375 and S5375. For a complete review of S5375 BIOS, refer to the motherboard manual.

	S5375 Mainboard	B5375 Barebone
Advanced		
Hardware Monitor Fan Control	Auto Fan Control Default: [Disabled]	Auto Fan Control Default: [Enabled]
	CPU0, CPU1, FAN1, FAN2, FAN3, FAN4	FAN1, FAN2, FAN3, FAN4, FAN5, FAN6, FAN7, FAN8, FAN9
Auto Fan Control Duty Cycle	Options: [Enabled], [Disabled] [0%], [30%], [40%], [50%]	Options: [Enabled], [Disabled]
Auto Fan Control Settings		

Appendix II: Cable Connection Tables

SATA Cable

Table 1: B5375 Model

M1208-3-SN SATA Backplane	Connect to	Motherboard
SATA 1 (J5)	→	SATA 0
SATA 2 (J3)	→	SATA 1
SATA 3 (J2)	→	SATA 2
SATA 4 (J1)	→	SATA 3

FAN Cable

Table 2: System Fan to M1012 Adapter Board

System Fan	Connect to	M1012
Fan 1~Fan 9	→	J14

Table 3: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard Fan
J14	→	J11

Power Supply Cable

Table 4: Power Supply to Motherboard

Power Supply	Connect to	Motherboard
P1 24-pin power cable	→	PW1 24-pin connector
P2 8-pin power cable	→	PW2 8-pin connector

Table 5: Power Supply to M1012 Adapter Board

Power Supply	Connect to	M1012
P4 4-pin power cable	→	PW2 4-pin connector

Table 6: Power Supply to M1208-3-SN SATA Backplane

Power Supply	Connect to	M1208-3-SN
P5 4-pin power cable	→	PW2 4-pin connector

Other Cables

Table 7: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard
J1 Front Panel connector	→	J16 (TYFP1)
J3 (LAN / ID LED)	→	J12 (TYFP2)

Table 8: M1003 Front Panel Control Board Related Cable

M1003 J1 USB connector	→	Motherboard J15 (USB)
M1003 J2 connector	→	M1012 J2 connector

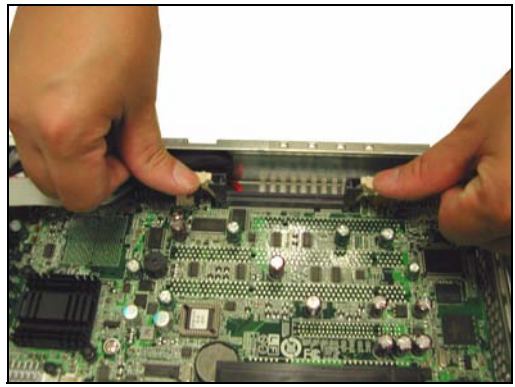
Table 9: SATA DVD-ROM Related Cable

Motherboard SATA4	→	DVD-ROM SATA connector
M1012 J19 power connector	→	DVD-ROM power connector

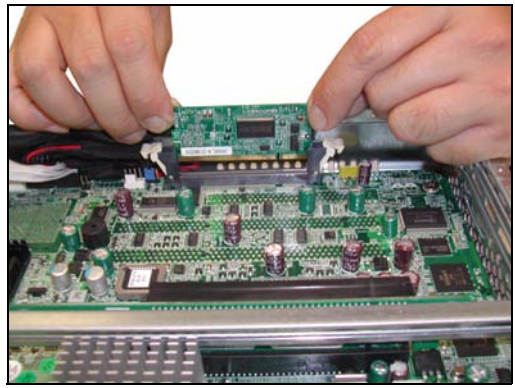
Appendix III: Installing SO-DIMM Card

The following provides you with the information on installing the TYAN SO-DIMM card into your GT20 chassis.

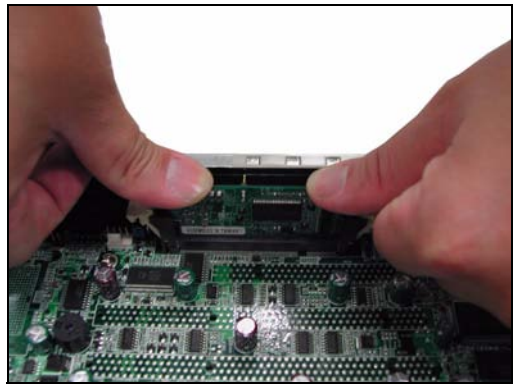
1. Open the spring levers as shown.

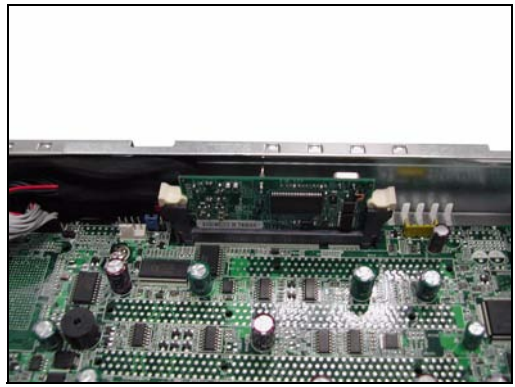


2. Insert the SO-DIMM card. The card will fit in the slot only one way. Make sure that you align the slot in the card with the key in the card slot.



3. Push the SO-DIMM card down into place and make sure the spring levers click into place as shown.





4. Follow the reverse procedures from Step 1 to Step 3 to remove the SO-DIMM card.

Appendix IV: FRU Parts List

GT20-B5375 FRU Parts					
Item	Model Number	Part Number	Picture	Quantity	Description
Motherboard	S5375G2NR	/		1	S5375G2NR Dual Intel® Xeon LGA771
Chassis Unit	CCHA-0082	432772300001		1	GT20 1U Chassis Unit
Chassis Unit	/	340763700002		1	I/O Shielding Assy for Chassis
Cover	CCCV-0060	451738500004		1	Rear Top Cover for GT20
Chassis Front Bezel	CFBZ-0070	451739100003		1	Front Bezel for GT Series 1U Chassis
Drive Tray	CHDT-0051	340746300001		4	Removable 3.5"HDD Tray
Power Supply	CPSU-0260	471015200166		1	600W Power Supply
FAN	CFAN-0171	541274620001		1	40x40x28mm, 12V, 6-Pin, 14500RPM
	CFAN-0066	541274620002		4	40x40x56mm, 12V, 6-Pin, 15000RPM
Heat Sink & Cooler	CHSK-0170	343753600001		2	LGA771 CPU Heat Sink(Main Source)
	CHSB-0080	342748500001		2	CEK Spring For LGA771
PCBA	M1208-3-SN	/		1	TF-PWA;PWA-GT20-M1208-3-SN, SATA/SAS BD
	M1012-RS	/		1	TF-Front Panel Adaptor Board, M1012-RS
	M1003-ID-RS	541174620001		1	TF-LED Board, M1003-RS
Riser Card	M2083	/		1	PCI-E 1U Riser Card

GT20-B5375 FRU Parts					
Item	Model Number	Part Number	Picture	Quantity	Description
Rack Mounting Parts	CRAL-0032	340738500004		1	Rail Kit
	CEAR-0050	340740900010		1	Mounting Ear Kit
Cable Set	CCBL-0326	422764400004		1	SATA DVD-ROM Cable, 250mm
	CCBL-0679	422753600007		1	SATA/SAS Cable
	CCBL-0340	422740000021		1	Control Board Cable, 250mm
	CCBL-0405	422753600003		1	TYFP I Cable, 300mm
	CCBL-0415	422753600004		1	TYFP II Cable, 300mm
	CCBL-0422	422772300003		1	SATA DVD-ROM Power Cable, 110mm
	CCBL-0650	422753600002		1	FAN Cable
	CCBL-0354	422759200004		1	USB Cable, 480mm
	CCBL-0310	332810000280		1	A/C Power Cord, US Type, 2440mm
	CCBL-0300	332810000281		1	A/C Power Cord, EU Type, 1800mm
Peripheral Drives& parts	CDVD-0060	523410299033		1	Slim Type SATA DVD-ROM
SMDC	M3295-2	/		1	SMDC IPMI Card
	M3296	/		1	SMDC IPMI Card

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then Tyan Computer Corporation can help.Besides designing innovative and quality products for over a decade, Tyan has continuously offered customers service beyond their expectations. Tyan's website (**www.tyan.com**) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. Tyan also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, Tyan serves multiple market segments with the industry's most competitive services to support them.

"Tyan's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Please feel free to contact us directly for this service at **techsupport@tyan.com**

Help Resources:

1. See the beep codes section of this manual.

2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com

3. Contact your dealer for help BEFORE calling TYAN.

4. Check the TYAN user group: alt.comp.periphs.mainboard.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid. TYAN will pay to have the board shipped back to you.

Tank GT20 B5375 Service Engineer's Manual v1.0

Document part No. D1959-100